The Important Stuff (Class)

• TTH 9:30-10:50 in Alden 101
• Prerequisites: CMPSC112 + MTH205
• Required textbook:
  – *Introduction to the Theory of Computation* by Michael Sipser, 2\textsuperscript{nd} or 3\textsuperscript{rd} edition
The Important Stuff (Me)

• Prof. John Wenskovitch
• Alden 104
• jwenskovitch@allegheny.edu
• Office Hours on Google Calendar
• I’m here because Bob Roos is on sabbatical
The Less Important Stuff (Me)

• BS in Software Engineering + math minor + multimedia application domain from Gannon University (2009)
• MS in Computer Science from University of Pittsburgh (2011)
• PhD in Computer Science from Virginia Tech (2017... I hope... please...)
• **Hometown:** Lower Burrell, PA
• **Likes:** Scifi, astronomy, hockey, roadtrips, live music
• **Dislikes:** Literary analysis, mornings, days warmer than 80F, students who don’t ask questions
The Moderately Important Stuff (Class)

• Grading!
  – Exams 1-3 (10% each)
  – Final Exam (20%)
  – Homework (30% total) (weekly assignments)
  – Final Project (10%)
  – Attendance & Participation (10%)
Some Other Degree of Importance (Class)

• Homework problem grading on a 3-1-0 scale:
  – 3 = perfect answer, or very minor flaws
  – 2 = very rarely given, moderate flaws
  – 1 = question attempted and partially completed, or completed with clear flaws
  – 0 = question was not answered, or answer is about your cat
Late Policy

• If it’s late, you get penalized
  – 20% up to one week
  – 100% after one week

• If you can’t get to class, tell me in advance
• If you’re sick, please get me documentation
• Don’t schedule vacations during exams!
What will I learn?

1. What are the fundamental capabilities and limitations of computers?
   - *Automata theory* (various models of computers)
   - *Formal language theory* (the languages that each of those models recognize)
   - *Decidability* (the problems that can be solved by each of those models)
What will I learn?

2. What makes some problems computationally hard while others are easy?
   – **Time complexity** (“computability theory”)
   – **P vs NP problem** (measuring the time complexity)
   – **NP-completeness** (how do hard problems relate to each other)
Class Structure

• **Week 1** = math review
• **Weeks 2-10** = automata & language theory
  – Weeks 2-4 = finite state machines
  – Weeks 5-6 = pushdown automata
  – Weeks 7-8 = Turing machines
  – Weeks 9-10 = decidability
• **Weeks 11-14** = computability theory
• **Weeks 15-16** = final project and exam
Important Dates

• EXAM 1 WILL BE ON SEPTEMBER 18
• EXAM 2 WILL BE ON OCTOBER 9
• EXAM 3 WILL BE ON NOVEMBER 6
• FINAL PROJECTS WILL BE PRESENTED ON DECEMBER 9
• FINAL EXAM WILL BE ON DECEMBER 11
Less Important Dates

- I’m in Paris November 11 and November 13
- I’m in Shenzhen December 2 and December 4
Any Questions?